



Original Research Article

Outcome of Open Radical Cystectomy and Ileal Conduit: A Single Center Experience

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ABSTRACT

BACKGROUND: Radical cystectomy and ileal conduit is considered as the treatment of choice for muscle invasive bladder cancer. Radical cystectomy is a challenging operation and hence prompt postoperative recovery, short hospital stay and reduction in morbidity and mortality are difficult to achieve.

AIM: To evaluate our results of open radical cystectomy with ileal conduit.

MATERIALS AND METHODS: Medical records of 70 patients who underwent radical cystectomy and ileal conduit between January 2006 to March 2011 at our institute were retrospectively analysed. Data recorded included age, mode of presentation, surgery, histopathologic findings, adjuvant treatment and postoperative complications.

RESULTS: The mean age at diagnosis was 58.6 years. Most of our patients belonged to age group of 50-70 years. 61 patients were males. Haematuria was the common mode of presentation. Left posterolateral was the most common site of involvement. Transitional cell carcinoma was the most common histologic type and occurred in 58 patients. Most of our patients had high grade tumors. 30 patients had stage 2 disease. The mean hospital stay was 14 days. Perioperative mortality was nil in our study. Most common early complications were wound infection (14 patients) and pyelonephritis (12 patients). Most common late complications were hydronephrosis (7 patients) and renal deterioration (6 patients).

CONCLUSION: Over a period of time with better preoperative, operative and postoperative management, our perioperative mortality has decreased considerably. However, the morbidity of radical cystectomy and ileal conduit still remains substantial requiring prolonged hospitalisation and management.

KEY WORDS: Radical cystectomy, Ileal conduit, Complications of Radical cystectomy

INTRODUCTION

The standard treatment for muscle invasive and high grade, non muscle

invasive bladder cancers, refractory to intravesical immunotherapy or chemotherapy, has been open radical

cystectomy in males and anterior exenteration in females, coupled with en bloc bilateral pelvic lymphadenectomy. [1-3] Radical cystectomy provides accurate staging information, which is the key for decision regarding adjuvant treatment options, while staging by clinical means is associated with up to 30% staging error. Traditionally, radical cystectomy has been associated with significant morbidity and mortality. However, due to improvements in surgical techniques, anaesthesia techniques, and perioperative intensive care and monitoring, the mortality and morbidity of open radical cystectomy have been reduced to 1-3% and 25-35%, respectively, in the recently published series. [1-6] All these authors have expressed their concern about the minimal impact on the incidence of postoperative morbidity which has defied modern technological advances. In the present study we have reviewed our long term surgical experience and clinical outcomes in a group of patients treated with radical cystectomy and ileal conduit for muscle invasive bladder cancer or superficial cancer refractory to intravesical therapy.



Figure 1: A gross specimen of radical cystectomy in a male patient.

Ileal conduit was prepared with 10-15 cms segment of terminal ileum.

MATERIALS AND METHODS

Between January 2006 to March 2011, 70 patients who underwent open radical cystectomy and ileal conduit for urinary bladder malignancy were included in this study. Data regarding patient's demographic profiles, perioperative outcomes, histopathological results and follow up were recorded. The indications for radical cystectomy included muscle invasive bladder cancer detected by transurethral resection or high grade stage Ta, T1 or carcinoma in situ, refractory to repeat transurethral resection and intravesical immunotherapy or chemotherapy. The patients with metastatic disease were excluded. All patients underwent preoperative workup including blood tests, chest Xray, urine culture and sensitivity, contrast enhanced computed tomography of the abdomen and pelvis and a bone scan, wherever indicated. The surgery was performed with en bloc excision of the bladder, prostate, and seminal vesicles in males and en bloc excision of uterus, ovaries, and anterior vagina in females.

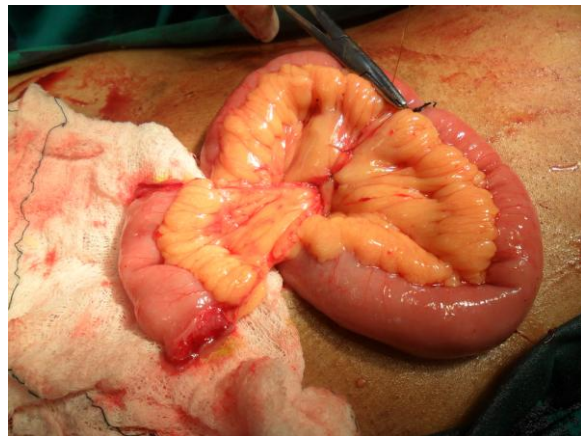


Figure 2: A photograph showing preparation of ileal conduit from terminal ileum.

Bilateral standard pelvic lymph node dissection was performed in all cases with

the following boundaries : cranially - bifurcation of the common iliac artery; caudally - lymph node of cloquet and laterally - genitofemoral nerve, including the obturator lymph nodes. Pelvic lymphadenectomy was performed either before cystectomy or after cystectomy depending on the tumor bulk and configuration of the pelvis.

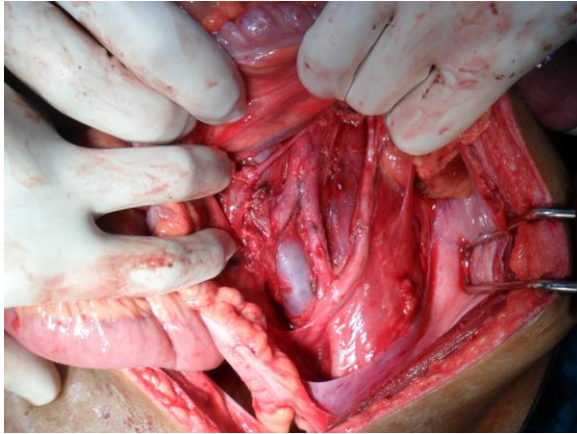


Figure 3: A photograph showing boundaries of a standard pelvic lymph node dissection

The lymph node packets were sent separately for histopathological examination. The surgical margins were considered positive on demonstration of a tumor at the inked margins of the specimen. The 2010 TNM classification was used for pathological staging and WHO classification was used for pathological grading. Multiple sections were obtained from the tumor, bladder wall, mucosa adjacent and distant from tumor along with ureters and lymph nodes. In men, sections from seminal vesicles and prostate were obtained while in women, sections were obtained from ovaries, uterus and vagina when appropriate.

Adjuvant chemotherapy was used in patients with pathological stage \geq T3b and/or lymph node involvement. Regimens consisted of methotrexate (M), vinblastine (V), doxorubicin (A) and cisplatin (C) or CMV or gemcitabine and cisplatin.

Adjuvant radiotherapy was used in patients with multiple tumors (>3) with at least one broad base tumor and in patients with positive lymph nodes.

Any death occurring within 30 days of operation was considered as perioperative mortality. Any complications occurring within first 4 months postoperatively were considered as early morbidity and after 4 months as delayed morbidity. Postoperatively, the patients were followed up every three months for the first two years and every six months for the next three years. During each visit, detailed history, physical examination, routine blood tests, chest Xray and urine cytology were performed. Urine cultures were not routinely obtained in asymptomatic patients. An abdominopelvic, contrast enhanced computed tomography was performed biannually. Upper tract monitoring was done yearly with intravenous urography depending on patient's serum creatinine level.

Data were analyzed in terms of perioperative mortality, early and delayed morbidity.

RESULTS

70 patients underwent radical cystectomy and ileal conduit at our institute. Mean patient age at surgery was 58.6 years (range 36 to 81). 61 patients were males and 9 were females with a ratio of 6.7:1. 50 patients were smokers. 35 patients were treated initially outside and referred here for further management. Most common mode of presentation was haematuria seen 59 patients. 10 patients had urinary tract infection which was managed with antibiotics according to urine culture report. 20 patients had mild obstructive uropathy at presentation which was managed conservatively before taking up for surgery. Left posterolateral was the most common site of involvement.

Neoadjuvant chemotherapy or radiotherapy was not used in any patient. All patients underwent radical cystectomy with bilateral standard pelvic lymph node dissection and ileal conduit. Adjuvant chemotherapy was given in 12 patients. Adjuvant radiotherapy was given in 9 patients. Transitional cell carcinoma was most common histology, found in 58 (82.85%) patients. Different histological types are summarised in table 1.

Table 1 Histological types

Histological type	Number of patients
Transitional cell carcinoma	58 (82.85%)
Poorly differentiated carcinoma	6 (8.5%)
Squamous cell carcinoma	5 (6.7%)
Spindle cell sarcoma	1 (1.3%)

Table 2 Pathological staging

Pathological stage	Number of patients
Stage 1	10 (14.2%)
Stage 2	30 (42.8%)
Stage 3	15 (21.4%)
Stage 4	15 (21.4%)

56 patients (80%) had high grade tumor. Ten (14.3%) patients had histologically confirmed positive lymph nodes. All these patients with positive lymph nodes received adjuvant chemotherapy. Most common stage was stage 2 seen in 30 patients (42.8%). Stage distribution of the patients is summarized in table 2. Perioperative mortality was not seen in any patient. Most common early morbidity was wound infection seen in 14 (20%) patients, followed by pyelonephritis seen in 12 (17%) patients. The early complications are summarized in table 3.

Table 3 Early morbidity

Early complications	Number of patients
Wound infection	14 (20%)
Pyelonephritis	12 (17%)
Acidosis requiring therapy	8 (11.4%)
Urine leak	3 (4%)
Wound dehiscence	3 (4%)
Fecal leak	2 (2.8%)
Bowel obstruction	2 (2.8%)

Table 4 Delayed morbidity

Delayed complications	Number of patients
Hydronephrosis	7 (10%)
Renal deterioration	6 (8.5%)
Stoma problems	4 (5.7%)
Bowel obstruction	1 (0.7%)
Incisional hernia	1 (0.7%)
Psoas abscess	1 (0.7%)
Deep vein thrombosis	1 (0.7%)

Most common delayed morbidity was hydronephrosis seen in 7 (10%) patients, followed by renal deterioration in 6 (8.5%) patients. The delayed complications are summarized in table 4.

The mean follow up was 82 months (15 to 70 months).

DISCUSSION

Bladder cancer is the second most common genitourinary malignancy with transitional cell carcinoma (TCC) comprising nearly 90% of primary bladder tumors. The majority of patients present with superficial bladder tumors while 20-40% either present with or develop invasive disease. Invasive TCC is usually a lethal disease requiring aggressive therapy, if not treated most of them die in two years time. [4,7] The aim of the treatment for any invasive bladder cancer should include long term survival, prevention of pelvic recurrence or development of metastatic disease better quality of life. During the past 40 years, radical cystectomy with en bloc pelvic lymphadenectomy has emerged as a gold standard for patients with high grade muscle invasive bladder cancer. Initially, there was lack of universal acceptance of this procedure because of high morbidity and mortality and need for urinary diversion, which was not acceptable to most of the patients and this procedure was done only in few centers. The ileal conduit introduced by Seiffert and popularized by Bricker, is one of the oldest, simplest, and most commonly performed techniques for urinary diversion. It has the longest follow up available, and

remains the gold standard to which all newer urinary diversions are compared. With better understanding of the pathophysiology of bladder cancer, early diagnosis, improvement in pre and postoperative care, advances in surgical and anaesthetic techniques and adjuvant chemotherapy, the outcome of radical cystectomy has become better and acceptable, both to the surgeon and the patient. It has now become a common surgical procedure in the armamentarium of the urologist.

Age more 70 years has been labeled as higher risk factor in previous studies. [8,9] When indicated, after adequate preoperative assessment and optimization of the patient, radical cystectomy is a safe procedure in the septuagenarians and patient should not be denied surgery dependent on chronologic age. [10] 8 of our patients belonged to an age group of more than 70 years.

Comorbidities (diabetes, hypertension and obesity) have been included as risk factors in the literature. [11] However, it is logical to believe that presence of comorbidities are not contraindication of surgery but will necessitate optimum preoperative correction and preventive measures to reduce morbidity. Comorbidities were present in 24 patients in our study. Most of our patients present at an advanced stage due to late presentation or delay in proper treatment mainly due to ignorance, low literacy rate and poverty.

Preoperatively correction of obstructive uropathy and poor nutritional status is also important to reduce complications. 20 of our patients presented with obstructive uropathy. Our experience with these patients showed that radical cystectomy is not associated with additional morbidity provided they are adequately prepared before surgery by optimizing the renal function. Ileal conduit, as the urinary diversion appears to be safe in patients with

a serum creatinine of < 2.5 mg at surgery. [12]

Ileal conduit was the choice of urinary diversion in our patients compared to continent diversions in the other series. [13,14] The possible causes are poor compliance and follow up due to lack of education and resources, low acceptance rate for continent diversions due to nature of job, need of intermittent self catheterization and late presentation due to ignorance, low literacy rate and poverty giving rise to advanced stage disease or renal impairment. With proper selection, at least 75-90% of the patients undergoing cystectomy may be considered appropriate for continent diversions. [14] In a national survey it has been found that more than 50% of the institutions in India even today are using ileal conduit for urinary diversion. [13]

Radical cystectomy and pelvic lymphadenectomy provide durable local control and long term survival as shown in previous studies. [15] 10 patients in our study had lymph nodal involvement. Adjuvant chemotherapy was given in all these patients.

Perioperative mortality was nil in our study when compared to 2 - 3% in most of previous studies. [16-18] This may reflect the improved preoperative, operative and postoperative management at our institute over a period of time. Most common early morbidity were wound infection (14 patients) and pyelonephritis (12 patients). Most common late morbidity were hydronephrosis (7 patients) and renal deterioration (6 patients). Gupta et al analyzed the long term outcome of 432 patients undergoing radical cystectomy and found that perioperative complications occurred in 25.7% of patients. Most common complications were bleeding, sepsis, ileus and urinary leak. [19]

Thus, due to strict attention to preoperative preparation, meticulous

surgery, and a team oriented surgical and postoperative approach, we have performed radical cystectomy and ileal conduit without perioperative mortality and acceptable morbidity. With the advent of minimally invasive procedures like laparoscopic and robotic radical cystectomy, these outcomes need to be compared. Prospective randomized studies involving a larger number of patients comparing open versus laparoscopic or robotic radical cystectomy are required to establish long term oncological efficacy of these procedures in Indian patients.

CONCLUSION

Radical cystectomy performed using an open approach has acceptable perioperative mortality, but morbidity still remains substantial requiring prolonged hospitalisation and management. Minimally invasive techniques (laparoscopic or robotic) need a long term prospective comparison with this approach, before being accepted as a standard treatment for urinary bladder malignancy in Indian patients. However, both these approaches have a steep learning curve and cost issues. On the other hand, open radical cystectomy with refinements of procedure has stood the test of time. Long term follow up of patients is needed to know whether ileal conduit will remain the gold standard for urinary diversion or other newly developed techniques will take its place. Over a period of time with better preoperative, operative and postoperative management, our perioperative mortality and morbidity has decreased considerably.

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REFERENCES

1. Huang GJ, Stein JP. Open radical cystectomy with lymphadenectomy remains the treatment of choice for invasive bladder cancer. *Curr Opin Urol* 2007;17:369-75.
2. Lowrance WT, Rumohr JA, Chang SS, et al. Contemporary open radical cystectomy: Analysis of perioperative outcomes. *J Urol* 2008;179:1313-8.
3. Konety BR, Joslyn SA, O'Donnell MA. Extent of pelvic lymphadenectomy and its impact on outcome in patients diagnosed with bladder cancer: Analysis of data from the Surveillance, Epidemiology and End Results Program data base. *J Urol* 2003;169:946-50.
4. Stein JP, Lieskovsky G, Cote R, et al. Radical cystectomy in the treatment of invasive bladder cancer: Long-term results in 1054 patients. *J Clin Oncol* 2001;19:666-75.
5. Dalbagni G, Genega E, Hashibe M, et al. Cystectomy for bladder cancer: A contemporary series. *J Urol* 2001;165:1111-6.
6. Madersbacher S, Hochreiter W, Burkhard F, et al. Radical cystectomy for bladder cancer today - a homogeneous series without neoadjuvant therapy. *J Clin Oncol* 2003;21:690-6.
7. Quek ML, Stein JP, Clark PE, et al. Microscopic and gross extravesical

- extension in pathological staging of bladder cancer. *J Urol* 2004;171:640-5.
8. Lee KL, Freiha F, Presti JC Jr, et al. Gender differences in radical cystectomy: complications and blood loss. *Urology* 2004;63:1095-9.
 9. Clark PE, Stein JP, Groshen SG, et al. Radical cystectomy in the elderly: comparison of clinical outcomes between younger and older patients. *Cancer* 2005;104:36-43.
 10. Gupta NP, Goel R, Hemal AK, et al. Radical cystectomy in septuagenarian patients with bladder cancer. *Int Urol Nephrol* 2004;36:353-8.
 11. Shabsigh A, Korets R, Vora KC, et al. Defining early morbidity of radical cystectomy for patients with bladder cancer using a standardized reporting methodology. *Eur Urol* 2009;55:164-74.
 12. Gupta NP, Kolla SB, Seth A, et al. Oncological and functional outcome of radical cystectomy in patients with bladder cancer and obstructive uropathy. *J Urol* 2007;178:1206-11.
 13. Gupta NP, Ansari MS, Nabi G. National survey on orthotopic neobladder. *Int Urol Nephrol* 2007;39:143-8.
 14. Hautmann RE, Volkmer BG, Schumacher MC, et al. Long-term results of standard procedures in urology: the ileal neobladder. *World J Urol* 2006;24:305-14.
 15. Bostrom PJ, Kossi J, Laato M, et al. Risk factors for mortality and morbidity related to radical cystectomy. *BJU Int* 2009;103:191-6.
 16. Chang SS, Cookson MS, Baumgatner RG, et al. Analysis of early complications after radical cystectomy: Results of a collaborative care pathway. *J Urol* 2002;167:2012-6.
 17. Hollenbeck BK, Miller DC, Taub D, et al. Identifying risk factors for potentially avoidable complications following radical cystectomy. *J Urol* 2005;174:1231-7.
 18. Quek ML, Stein JP, Daneshmand S, et al. A critical analysis of perioperative mortality from radical cystectomy. *J Urol* 2006;175:886-9.
 19. Gupta NP, Kolla SB, Seth A, et al. Radical cystectomy for bladder cancer: A single center experience. *Indian J Urol* 2008; 24:54-9.

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